

REMARKS

The Office Action dated October 14, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 51 and 57 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 1-27 and 45-46 have been previously cancelled. No new matter has been added. Therefore, claims 28-44 and 47-57 are currently pending in the application and are respectfully submitted for consideration.

Applicants respectfully note that, while the Office Action indicates that claims 45-46 are also currently pending in the application, claims 45-46 were cancelled in the previous response.

Claim Rejections Under 35 U.S.C. § 102(e)

The Office Action rejected claims 28-30, 32-34, 38-42, 49, 52, and 55-57 under 35 U.S.C. § 102(e) as being anticipated by Pitt et al. (U.S. Patent No. 6,650,288) ("Pitt"). While the rejection heading in the Office Action appears to only indicate claims 28-30, 32-34, 38-42, and 52, a call to the Examiner was made, and the Examiner configured that claims 55-57 were rejected as well as claims 28, 30, 49, and 52. The rejection is respectfully traversed for at least the following reasons.

Claim 28, upon which claims 29-44 and 47-48 are dependent, recites a method, which includes estimating visibilities of a plurality of satellites based on elevation angles

of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, where obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. The method further includes selecting a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and sending, to the mobile station, location assistance information relating to at least said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 49, upon which claims 50-51 are dependent, recites an apparatus, which includes an estimator configured to estimate visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said satellites being satellites of a satellite positioning system, where the estimator is further configured to take into account obstructions in the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The apparatus further includes a selector configured to select a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and a transmitter configured to transmit, to a mobile station, location assistance information relating to at least said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 52, upon which claims 53-54 are dependent, recites a system, which includes a receiver configured to receive a satellite positioning system configured to obtain location assistance information relating to satellites of the satellite positioning system, and an estimator configured to estimate visibilities of a plurality of satellites of the satellite positioning system based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, where the estimator is further configured to take into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The system further includes a selector configured to select a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and a transmitter configured to transmit, to the mobile station, location assistance information relating to said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 55 recites an apparatus, which includes a receiver configured to receive a satellite positioning system configured to obtain location assistance information relating to satellites of the satellite positioning system, and an estimator configured to estimate visibilities of a plurality of satellites of the satellite positioning system based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, where the estimator is further configured to take into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of

the plurality of satellites with respect to the mobile station. The apparatus further includes a selector configured to select a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and a transmitter configured to transmit to the mobile station, location assistance information relating to said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 56 recites an apparatus, which includes estimating means for estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said satellites being satellites of a satellite positioning system, where the estimating means takes into account obstructions within the vicinity of the estimated location of the mobile station in estimating the visibilities of the plurality of satellites with respect to the mobile station. The apparatus further includes selecting means for selecting a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and transmitting means for transmitting to a mobile station, location assistance information relating to at least said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

Claim 57 recites a computer program embodied on a computer readable medium, the computer program being configured to control a processor to perform a method, The method includes estimating visibilities of a plurality of satellites based on elevation

angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, where obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station. The method further includes selecting a group of said plurality of satellites with the best estimated visibilities with respect to the mobile station, and sending, to the mobile station, location assistance information relating to at least said group of satellites, wherein the location assistance information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

As will be discussed below, Pitt fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

Pitt generally discloses that GPS satellites are culled into a minimum, preferred group having a longest dwell time within a cone of space, and communicated to mobile devices or subscribers within a particular region. The culling may initially be a list of GPS satellites visible to a particular base station at a particular time. (See Pitt at Abstract).

Applicants respectfully submit that Pitt fails to disclose, teach, or suggest, all of the elements of the present claims. For example, Pitt fails to disclose, teach, or suggest, at least, *“estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said*

plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,” as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

Pitt discloses a GPS system including a base station 150, and twenty four GPS satellites 101-124, only a sub-set 107-114 which are visible to the base station 150 at any one time. (See Pitt at col. 2, lines 32-45). Pitt further discloses that the total number of available GPS satellites 101-124 is centrally culled for the base station 150. The culling is gradual (i.e. the culling is first down to the GPS satellites 107-114 that are visible, and then down to a preferred group having the longest dwell time for use by a particular cell site). (See Pitt at col. 3, lines 11-21). Dwell time is determined based on a distance between the present location of a particular GPS satellite, and the exit edge of a cone of space 217, as well as the rate of speed of the GPS satellite. (See Pitt at col. 3, lines 55-58). Each mobile unit is then updated with a revised list of selected GPS satellites resulting from the culling of the GPS satellites. (See Pitt at col. 3, lines 22-35).

Applicants respectfully submit that there is no disclosure, either explicit or implicit of the feature of taking into account obstructions in the vicinity of the estimated location of the mobile station, or the feature of estimating the visibilities of the plurality of satellites with respect to the mobile station. The Office Action cites the portion of Pitt, described above, which teaches that the total number of available GPS satellites 101-124

is centrally culled for the base station 150, and that the culling is first down to the GPS satellites 107-114 that are visible, and then down to a preferred group having the longest dwell time for use by a particular cell site. The Office Action fails to show how the concept of dwell times falls within the scope of the independent claims reciting estimating visibilities wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station.

Therefore, for at least the reasons discussed above, Pitt fails to disclose, teach, or suggest, all of the elements of independent claims 28, 49, 52, 55, 56, and 57. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 29-30, 32-34, and 38-42 depend upon independent claim 28. Thus, Applicants respectfully submit that claims 29-30, 32-34, and 38-42 should be allowed for at least their dependence upon independent claim 28, and for the specific elements recited therein.

Claim Rejections Under 35 U.S.C. § 103(a)

The Office Action rejected claims 28, 30-31, 35-37, 42-43, 47-50, and 52, and 55-57 under 35 U.S.C. § 103(a) being unpatentable over Pitt in view of Carlsson et al. (U.S. Patent No. 7,009,948) (“Carlsson”). The Office Action took the position that “in the event if Pitt does not inherently disclose sending assistance message, it would have been obvious in view of Carlsson. Carlsson teaches the use of assistance message sending to

mobile for helping position fix (col. 7, lines 31-52). It would have been obvious to modify Pitt with Carlsson by incorporating assistance message to send the ordered list of visible satellites to mobile in order to help mobile to get faster acquisition of satellite position information.” (See Office Action at page 4). The rejection is respectfully traversed for at least the following reasons.

The description of the independent claims, as described above, is incorporated herein.

As will be discussed below, the combination of Pitt and Carlsson fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above.

The description of Pitt, as discussed above, is incorporated herein. Carlsson generally discloses a method for performing a position fix by a mobile terminal camped on a packet control channel. The method includes transmitting a request for Global Positioning System assistance data via the packet control channel and receiving the requested assistance data via the packet control channel. The method also includes performing the position fix using the received assistance data. (See Carlsson at Abstract).

Applicants respectfully submit that Pitt and Carlsson, whether considered individually or in combination, fail to disclose, teach, or suggest, all of the elements of the present claims. For example, the combination of Pitt and Carlsson fails to disclose, teach, or suggest, at least, *“estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a*

mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,” as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57.

As described above, Pitt fails to disclose, or suggest, the aforementioned limitation of independent claims 1, 49, 52, and 55-57. Furthermore, Carlsson does not cure the deficiencies of Pitt. The portion of Carlsson cited by the Office Action merely discloses that an assistance message is transmitted on a DCCH to help a mobile terminal acquire the assistance data via a broadcast message. The cited portion of Carlsson fails to disclose, or suggest, the feature of taking into account obstructions in the vicinity of the estimated location of the mobile station, or the feature of estimating the visibilities of the plurality of satellites with respect to the mobile station.

Therefore, for at least the reasons discussed above, the combination of Pitt and Carlsson fails to disclose, teach, or suggest, all of the elements of independent claims 55-57. For the reasons stated above, Applicants respectfully request that this rejection be withdrawn.

Claims 30-31, 35-37, 42-43, and 47-48 depend upon independent claim 28. Claim 50 depends upon independent claim 49. Thus, Applicants respectfully submit that claims 30-31, 35-37, 42-43, 47-48, and 50 should be allowed for at least their dependence upon independent claims 28 and 49, respectively, and for the specific elements recited therein.

The Office Action rejected claims 45-46, 51, and 53-54 under 35 U.S.C. § 103(a) being unpatentable over Pitt in view of Carlsson and further in view of Sheynblat (U.S. Patent No. 6,720,915) (“Sheynblat”). The Office Action took the position that the combination of Pitt and Carlsson discloses all the elements of the claims with the exception of “the determination of visibility is based on elevation angles of satellites” and “the network element is a location server or a number of network elements.” The Office Action then cited Sheynblat as allegedly curing the deficiencies of Pitt and Carlsson. As noted above, while the Office Action appears to reject claims 45-46, claims 45-46 were cancelled in a previous response. The rejection is respectfully traversed for at least the following reasons.

The description of Pitt and Carlsson, as discussed above, is incorporated herein. Sheynblat generally discloses a method and apparatus to obtain an ordered set of satellite position system (SPS) satellites, in view of a mobile SPS receiver, via a one or two-way communication with the mobile SPS receiver. The mobile SPS receiver receives an ordered set of SPS satellites from a cellular transmission site. The ordered set of satellites are those in view of the mobile SPS receiver at a given time, such that the mobile SPS receiver may search for the SPS satellites according to an order of the ordered set of SPS satellites. (See Sheynblat at Abstract).

Claim 51 depends upon independent claim 49. Claims 53-54 depend upon claim 52. As discussed above, the combination of Pitt and Carlsson does not disclose, teach, or suggest all of the elements of independent claims 49 and 52. Furthermore, Sheynblat

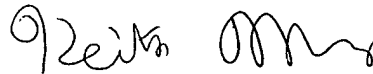
does not cure the deficiencies in Pitt and Carlsson, as Sheynblat also does not disclose, teach, or suggest, at least, *“estimating visibilities of a plurality of satellites based on elevation angles of the plurality of satellites with respect to an estimated location of a mobile station, said plurality of satellites being satellites of a satellite positioning system, wherein obstructions in the vicinity of the estimated location of the mobile station are taken into account in estimating the visibilities of the plurality of satellites with respect to the mobile station,”* as recited in independent claim 1, and similarly recited in independent claims 49, 52, and 55-57. Thus, the combination of Pitt, Carlsson, and Sheynblat does not disclose, teach, or suggest all of the elements of claims 51 and 53-54. Additionally, claims 51 and 53-54 should be allowed for at least their dependence upon independent claims 49 and 52, respectively, and for the specific elements recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited prior art references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 28-44 and 47-57 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Keith M. Mullervy
Registration No. 62,382

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Vienna, Virginia 22182-6212
Telephone: 703-720-7800
Fax: 703-720-7802

KMM:skl